

spring may be partly converted into ice as it trickles away. The air is dry; in 1898 the average humidity was 28 in July and 21 in August. Periods of more than three months may pass without falls of rain or snow. Even in the high passes in March the snow is rarely so deep as to impede travel, for at 12,500 feet, the elevation at which the Kirghiz seek winter quarters, it does not prevent their herds from finding pasturage. * * *

High Pamir plants display few expressions of adaptation to drought; their habit and their histology alike suggest that they are more influenced by strong light than by dry air. Further, they agree more closely, on the whole, with Alpine than with Arctic plants, and their structure suggests that they are affected more markedly by the altitude at which they grow than by the climate they have to endure. * * *

The relationship between the vegetation of a flat Pamir and that of the containing slopes is fully understood only if it be realized that the valley-floor plant formation is a "complex" of at least three distinct plant associations. When this floor is quite horizontal all the species of the formation may be intermingled; but this condition is rare. Usually the surface is undulating, and more plants are to be found on the rises than in the depressions. Some species in the depressions grow equally freely on the rises; a few prefer the depressions; one or two are confined to them. On the rises the plants on the side facing north or east differ from those on the side facing west or south, and this arrangement is repeated with every rise from end to end of a Pamir. Though these slopes are never very pronounced, the adjustment between the species concerned and the conditions that affect them is so fine that, even when the inclination is too slight to be perceptible to the eye or the muscular sense, the alternating bands of species appropriate to the anticlinal exposures demonstrate undulation of surface, and reveal the effect due to the enjoyment of a greater or less amount of heat and light, and of a larger or smaller supply of moisture. * * *

[As in the days of Marco Polo] in this region "are excellent pastures, so that in them a lean horse or an ox may be fat in 10 days * * *." Pamir air may perhaps assist the Pamir grass, for the climate of these lofty uplands is as healthy as it is severe. * * *

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THE CLIMATE OF MESOPOTAMIA.

Symons's Meteorological Magazine for September and October, 1919, contains several notes on the climate of Mesopotamia.¹ The notes are written by two men in the military service of Great Britain. On April 6, 1918, Corp. Smith wrote:

There is an enormous difference between summer and winter out here. We have been experiencing a very cold and wet winter, after having had no rain for nearly nine months [A later letter says that no rain has ever fallen between June and September, and that the total rainfall for the year is, on the average, 6.89 inches.] * * * Our coldest day this winter was in last December, when 14° of frost were registered, and the hottest last summer was 142.8° F. in the shade.

¹ Ridpath, C. E. E.: Notes on the climate of Mesopotamia. *Symons's Met'l Mag.* Sept., 1919, pp. 90-91. Cont. in Oct., 1919, pp. 107-108.
 Horner, D. W.: The climate of Mesopotamia. Excerpts from letters of Corp. R. J. Smith. *Symons's Met'l Mag.*, Oct., 1919, p. 103.

In tents it goes up to 135°. The buttons on one's tunic get too hot to touch and the same with one's rifle and all metal objects.

The glare is terrible, and one needs dark-blue glasses; further protection from the sun is given by spine pads and helmet shades (a flap which comes over the nape of the neck). * * * In the winter we feel the cold tremendously, especially as we have to live in tents (more or less rain proof) and have no fires, not even a charcoal brazier.

The discomfort entailed by these excessive temperatures is accentuated by the very low humidity, points out Ridpath, and it is only from the cooling effect of evaporating perspiration that one is able to endure it. Quite remarkable, however, is the adaptability of the human body to such extraordinary conditions. "For instance, one would start playing tennis in the 'cool' of the late afternoon when the temperature had sunk to 100° or 95°." The dry air gives cool nights and affords welcome relief from the excessive days.

The soil becomes baked in summer, and where there is traffic a fine dust forms, which is the cause of much discomfort in the occasional dust storms and daily whirlwinds, or "dust devils."

During the summer dust devils may be seen every day. Their diameter at the base is anything up to 50 yards. They travel with the wind and possess plenty of energy and lifting power. They extend many hundred feet into the air. A pilot in our squadron happened once to fly over the top of a dust devil. He was not lifted but fell 1,000 feet so quickly that the machine barely stood the strain when it suddenly encountered denser air again.

Also, when it rains, the alluvial soil becomes very muddy, sand being almost entirely absent. Thunderstorms of a fairly violent character occur nearly all winter, although the winds are not excessively violent.

The country was once one of great agricultural abundance, but is now barren. Under a new administration great things may be accomplished.—C. L. M.

NATURE VERSUS THE AUSTRALIAN.

[Reprinted from *Nature*, London, Dec. 2, 1920, page 450.]

The potentiality of Australia for white settlers is discussed by Dr. Griffith Taylor in an article entitled, "Nature versus the Australian," in *Science and Industry* for August. After a discussion of the amount and variability of rainfall in Australia, Dr. Taylor divides the country into seven regions based on rainfall, in terms of which agricultural and pastoral production can be classified. Farming and close white settlement generally are and, he contends, will be confined to three of these regions, which embrace the Riverina, Victoria, Tasmania, eastern Queensland, the northeast of New South Wales, and "Swanland" in western Australia. The distribution of minerals, especially coal, will in time result in dense population irrespective of agricultural potentiality, but in Australia the coal fields occur in the regions favored by climate, and so tend to more centralization of population. Dr. Taylor is not hopeful of white settlement in tropical Australia, and gives adequate climatic reasons for his opinions. The paper concludes with a tentative map showing the habitability of the globe. In the Southern Hemisphere southeastern Australia and New Zealand alone are indicated as areas with a potentiality in white settlement of more than 125 per square mile.